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7-25-2016

## Review of Large Carnivore Conservation: Integrating Science and Policy in the North American West

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# Review of Large Carnivore Conservation: Integrating Science and Policy in the North American West

## Abstract

The management and conservation of large carnivores is of worldwide concern and is as much about human values, interactions, and governance as carnivore biology. Susan Clark and Murray Rutherford continue their work on coexisting with large carnivores ( [Clark et al. 2005](#) ) with a new edited volume *Large Carnivore Conservation: Integrating Science and Policy in the North American West* . *Large Carnivore Conservation* that expands on the same themes as their previous work with case studies from Arizona to the Yukon. While focusing on the North American West, Clark and Rutherford hope to provide a holistic approach to carnivore management in general.

## Disciplines

Animal Sciences | Ecology and Evolutionary Biology | Natural Resources and Conservation | Natural Resources Management and Policy

## Comments

This review is published as A. L. McCombs, A. J. Albertsen, M. M. Cox, E. E. Ernst, H. J. Haley, D. A. Loney, M. M. Mackert, F. Piatscheck, V.M. Pocius, D. S. Stein, E. A. Altrichter, A. J. Almond, J. M. Dale, J. N. Dupuie, Jr., P. G. McGovern, B. A. Nixon, J. E. Swanson, R. W. Klaver; Large Carnivore Conservation: Integrating Science and Policy in the North American West, *Journal of Mammalogy*, Volume 97, Issue 4, 25 July 2016, Pages 1256–1258, doi: [10.1093/jmammal/gyw019](https://doi.org/10.1093/jmammal/gyw019).

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## BOOK REVIEWS

**Clark, S. G., and M. B. Rutherford (eds.).** 2014. *LARGE CARNIVORE CONSERVATION: INTEGRATING SCIENCE AND POLICY IN THE NORTH AMERICAN WEST*. University of Chicago Press, Chicago, Illinois, xiii + 407 pp. ISBN 978-0-226-10740-0, price (hard cover), \$60.00.

Published by Oxford University Press on behalf of the American Society of Mammalogists. This work is written by (a) US Government employee(s) and is in the public domain in the US.

The management and conservation of large carnivores is of worldwide concern and is as much about human values, interactions, and governance as carnivore biology. Susan Clark and Murray Rutherford continue their work on coexisting with large carnivores (Clark et al. 2005) with a new edited volume *Large Carnivore Conservation: Integrating Science and Policy in the North American West*. *Large Carnivore Conservation* that expands on the same themes as their previous work with case studies from Arizona to the Yukon. While focusing on the North American West, Clark and Rutherford hope to provide a holistic approach to carnivore management in general.

We reviewed *Large Carnivore Conservation* as part of a graduate seminar at Iowa State University, and seminar participants represented the full range of readers who might be interested in the book: natural resource managers, citizen advocates, researchers, and students. Although we encountered a variety of opinions based on our different backgrounds and orientations, we discovered a surprising amount of consensus both about what the book does well and where it falls short of our expectations.

*Large Carnivore Conservation* divides its discussion into 2 sections: the 1st section of the book (Chapters 2–7) describes case studies of large carnivore conservation throughout the North American West, while the 2nd section (Chapters 8–10) examines relevant governance and sociopolitical factors. Chapter 1 provides a brief introduction to the structure of the book and presents its primary thesis, namely, that successful management and conservation of large carnivores requires collaborative governance and an “integrative approach” to conservation. The contrast between the authors’ preferred method of collaborative decision-making and a more typical science-based, top-down management style is introduced in Chapter 1 and continues as a theme through the rest of the book.

Chapter 2 presents the book’s 1st case study, describing a problematic attempt at mountain lion management in Arizona. The chapter does a good job analyzing how a traditional management model can impede the cultivation of common ground. Unfortunately, the level of detail in the chapter is uneven; too little information is included about the problem and too much time is spent on the analysis, so the discussion seems both

poorly grounded and repetitive. We found this to be a recurring problem throughout the book. Chapter 3 examines conflicts associated with grey wolf management in the Upper Green River Valley region of Wyoming. The authors usefully analyze the management problems as ones of value deprivation, and encourage decision makers to incorporate into the management process the different symbolic meanings wolves have to different stakeholder groups. As with Chapter 2, the writing in Chapter 3 presents some challenges for the reader. Most of the chapter seems to be adapted from a graduate thesis, incompletely edited for inclusion in the book.

Chapters 4 and 5 discuss, respectively, grizzly bear and wolf management in 2 different regions in Canada. Chapter 4 highlights the importance of building social capital and trust between stakeholder groups, particularly local people and governmental management institutions. The chapter also discusses the advantages of community-based solutions in place of top-down management. Chapter 5 examines the role of informal local collaborations, and how avoiding media attention can create a safe space for stakeholder voices to be heard. The authors conclude that the effectiveness of local collaborations depends on good communication and organization, as well as a stable base of both financial and human capital.

Chapter 6 presents the book’s only success story, in which local efforts from a grassroots watershed group led to a 96% reduction in grizzly–human conflicts. The authors emphasize how collaborative decision-making among local and national stakeholders produced management goals and practices around which all parties could converge. The chapter concludes with a discussion of lessons for managers and a description of specific management recommendations (both procedural and substantive) extracted from the success of this case.

The case study in Chapter 7 is the last in the book and discusses a grizzly bear dialogue group created to shift decision-making away from scientific management and toward collaborative governance. Not long after its inception, the group clashed with many participants’ expectations, and ultimately failed to maintain the social capital needed for continuing collaboration. While the inclusion of quotes from interviewees effectively conveys the urgency of value-based discussions, the writing in this chapter also suffers from too little focus on the details of the problems and too much focus on analysis and discussion.

In Chapter 8, the book switches focus from discussions of case studies to an examination of governance and sociopolitical factors relevant to large carnivore conservation. The authors identify problems with decision-making at the institutional level and make recommendations about how to resolve these problems to improve the success of carnivore conservation measures. Chapter 9 describes the North American model of wildlife conservation, discussing its history and current context, and

analyzing both the strengths and weaknesses of the model. The authors conclude that the model is outdated and that its continued use has contributed to many of the failures described previously in the book. They offer several suggestions for updating the model, some more realistic than others. The authors' analysis is a good beginning, but the North American model might be better thought of as a collection of policies and principles that inform conservation practices. Some of these principles are still useful and constructive, and perhaps the focus should not be on revising "The Model," but rather on developing new policies to address current and future conservation challenges. Unfortunately, the editing in Chapter 9 seemed hurried—this chapter includes more typographical errors than we would like to see, and citations are inconsistently formatted.

We found Chapter 10 to be one of the most problematic parts of the book, both in its placement and its content. Chapter 10 describes key elements of human cognition that prevent us from fully coming to grips with the complexities of large carnivore management. Our 1st difficulty with the chapter was credibility: in a book about carnivore conservation, the authors never present their credentials in human psychology. Additionally, several of the studies they cite seem misplaced, and the useful information that is included in the chapter is unfortunately difficult to pick out among the dross.

The other difficulty with this chapter is its placement in the book, and this larger issue of organization is one we struggled with throughout. The arrangement of material both within and among chapters often seemed haphazard. In many chapters, we had difficulty following the logical flow of ideas, and information was sometimes presented later than when it would have been most useful. The chapter on the North American model (Chapter 9), for example, would be much more helpful at the beginning of the book, as an introductory chapter to the case studies. In general, we felt that all of the theoretical discussions of governance and socioeconomic processes would have been more usefully presented before the case studies.

The book's concluding chapter, Chapter 11, describes the 3 overall goals of the book: 1) to harvest experience from past management activities; 2) to provide insight into decision-making processes, institutions, and culture; and 3) to offer practical recommendations about how to find common ground solutions to the diverse challenges of large carnivore conservation. In assessing how well the book met these goals, we found that the authors were most successful when they were providing insight into decision-making processes (Goal 2). Many useful lessons were gleaned from the case studies (Goal 1), although we thought the single chapter on mountain lions could have been helpfully contrasted with another example of mountain lion management.

We were less convinced that the authors succeeded in Goal 3 (practical recommendations). They did include many constructive suggestions throughout the book, summarized in each of the case study chapters in "Lessons for Managers" boxes. Several chapters also included appendices that were at least as useful as the chapter text. Unfortunately, many (but not all) of their recommendations seemed based on a "perfect world" scenario, and the value of these recommendations in the face

of limited time, energy, and resources was unclear. A summary appendix collecting all the suggestions and recommendations into one place would have provided an invaluable quick reference, and we wish the authors had included one.

One other concern emerged in our discussions of the various chapters. Throughout the book, the authors have a tendency to downplay the importance of research-based science in natural resources decision-making. This strategy is understandable given their focus on collaborative processes and governance, but could be dangerous if taken too far. We agree with the authors that human values and interactions are essential elements of natural resources management, but a good understanding of the relevant science is also crucial, and decision makers ignore it at their peril. Minimizing the importance of science-based decision-making to an audience of citizen advocates is especially worrisome.

Overall, despite its flaws we think *Large Carnivore Conservation* should appeal to a variety of audiences. The 1st section of the book (the case studies) will be most useful to managers and astute citizen advocates. It includes valuable information, analyses, and recommendations that could inform decision-making processes not only about large carnivores, but about natural resources more broadly. Large carnivores are not the only taxa that generate conflict, and management generally could benefit from a more self-conscious approach to decision-making. Unfortunately, the reader must wade through a lot of repetition, inconsistent editing, and oddly chosen details to capture the lessons in the case studies. However, overall, we think the effort is worth it.

We also think the book would be a good choice for an advanced undergraduate or graduate seminar in natural resources management and/or conservation biology. While *Large Carnivore Conservation* would not be appropriate for use as a textbook, it did generate interesting conversations in our seminar environment. Alternately, single chapters could stimulate provocative discussions in a more lecture-based class.

Despite our frustrations, we came away from the book with a richer understanding of the human dimensions inextricably linked to natural resources conservation in North America. As carnivores face both increasing threats (Ripple et al. 2014) and recolonize areas where they have not occurred recently (Chapron et al. 2014; Smith 2015), these lessons will become increasingly important. This book provides a strong argument for the thesis that managing carnivores is essentially about fostering informed consent among people.

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DOI:10.1093/jmammal/gyw019  
Published online February 22, 2016

**Grossman, G.** 2016. *NATURAL VOICES* (CD). Available from Gary Grossman, Athens, GA (e-mail: [gdgrossman@gmail.com](mailto:gdgrossman@gmail.com)), \$12.50.

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This CD is a collection of songs produced and sung by Gary Grossman. The melodies, which comprise 12 tracks and a total duration of 30–35 min, are each about nature. The songs were all written by Grossman and are accompanied with a ukulele. Each song contains 3–9 stanzas, some with a chorus and some without. The recording can be used for personal enjoyment or for possible classroom media to aid students with understanding the various concepts and natural history topics covered. The songs include subjects ranging from natural selection and evolution to classification and speciation, with many being about particular species or habitats. These latter include foxes, shrews, and birds, as well as piney flatwoods.

Each stanza is comprised of 4-line verses, some of which have rhyming couplets. A small pamphlet included in the dust jacket contains the words to each of the songs. Throughout I found the lyrics to be well done and faithful to the biology on which they are based. The content of each song flows in a sequential pattern that is based on the topic or organism covered by the verses. The singing is clear and distinct, which makes the verses and words easy to follow. If the CD is intended for pure enjoyment, people interested in natural history and biological subject matter will find it quite interesting and worthwhile.

I suspect that another major purpose for the CD is the aforementioned use of it in classrooms as an aide to learning the topics covered. In that sense, I have some suggestions that would, perhaps, make the effort more useful and conducive to classroom use, quite possibly for high school students or those enrolled in a biology class for nonmajors at the undergraduate level.

First, the songs should be arranged in some sort of logical order, covering the topics in a sequence that fits a hierarchical scheme using the relevant biological concepts. It would be

possible, of course, for an instructor to present the songs in the order I propose, but it might be best to have the tracks on the CD arranged this way. A possible order would begin with songs on evolution and natural selection. This could be followed by those on related concepts like niche, competition, and foraging. Finally, the topics about individual species or habitats would come last, in no particular order.

Second, the small insert with the words of the tunes could be expanded to include an introduction to explain the possible purposes of the songs and the rationale for the sequence. This might also include a few words about each song and how it fits into the sequence. Finally, Grossman could record a few words of introduction for each song on the CD, helping instructors and students grasp the major ideas contained in the words of that offering.

I find the songs and performance well done and enjoyable. I believe, that if the CD is to provide a media aide to teaching that there need to be some changes as per my thoughts. These, in fact, should not be difficult to accomplish. With those alterations, I would consider the songs as a most interesting addition to a class; it would attract and grab the attention of the students. A teacher could play the recording of a particular song at the beginning of a class where the subject material to be covered was part of the song.

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DOI:10.1093/jmammal/gyw063  
Published online April 1, 2016

**Zhigang, J., M. Yong, W. Yi, W. Yingxiang, Z. Kaiya, L. Shaoying, and F. Zuojian** (eds.). 2015. *CHINA'S MAMMAL DIVERSITY AND GEOGRAPHIC DISTRIBUTION*. Science Press, Beijing, China, 402 pp. ISBN: 978-7-03-044620-6, price (paper), \$40 (available from China Scientific Book Services, Beijing, China).

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When Glover Allen (Allen 1938–1940) published his 2-volume treatise on the mammals of China and Mongolia, it would be another 70 years before major works (Smith and Xie 2008, 2013) would provide a comprehensive coverage of this vast geographic region of mammalian fauna. Beginning in 1984, my first of many ventures into China required thorough reading of Allen's publication, at which time the 314 mammalian species accounts were nearly 50 years old.

Fortunately, today we have not only the recent works of Smith and Xie, but also this comprehensive work by several distinguished Chinese mammalogists. It is an outgrowth of an earlier checklist of China mammals (Wang 2003). A need for an updated account of species to aid in the conservation efforts of China mammals dictated this publication. The